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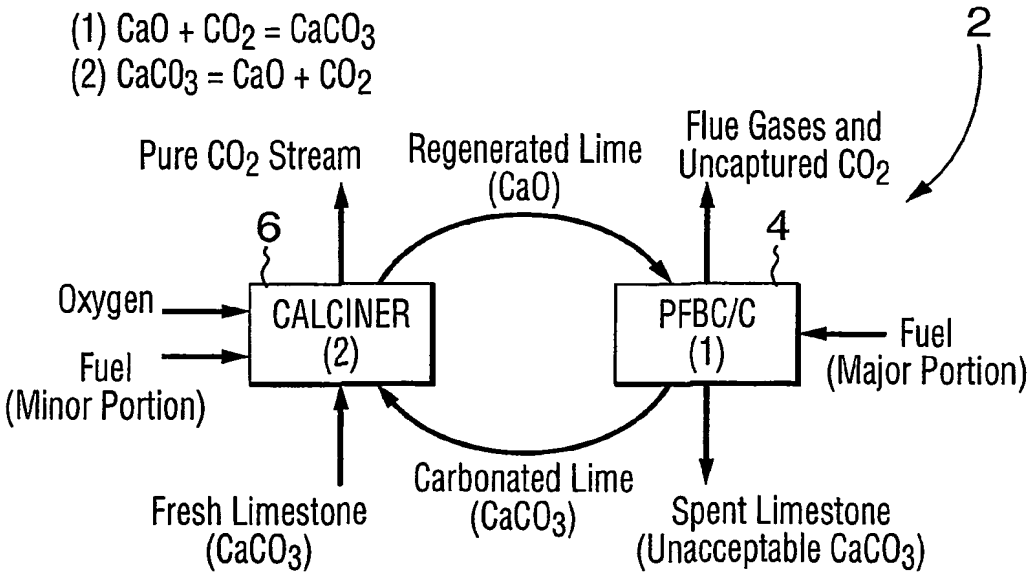
(54) Title: REACTIVATION OF LIME-BASED SORBENTS BY CO2



(57) Abstract: The present invention discloses a method and an apparatus for reactivating lime-based sorbents and increasing the carbon dioxide-capture capacity of the sorbent in the combustion of carbon-containing fuels. The method of the present invention seeks to increase the carbon dioxide capture capacity of lime-based sorbents by applying concentrated or 100% carbon dioxide directly to a lime-based sorbent. Optionally, the lime-based sorbent may be pretreated using a hydration process after each process of carbon dioxide separation. The regenerated sorbent is carbonated in a presence of concentrated carbon dioxide and elevated temperatures. The invention is useful in reducing the need to add additional sorbent to maintain the carbonation/calcination cycle. The regenerative potential of the sorbent as manifested by the present invention leads to increased carbon dioxide-capture capacity of the sorbent.

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